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UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/727,534	11/28/2000	Paul Nadj	SIA-P035	9960

45640	7590	11/30/2004

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EXAMINER
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ART UNIT	PAPER NUMBER
2165	

DATE MAILED: 11/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/727,534	NADJ ET AL.
	Examiner	**Art Unit**	
	Tony Mahmoudi	2165	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 May 2004*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,5 and 7* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,5 and 7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

     1.☐ Certified copies of the priority documents have been received.

     2.☐ Certified copies of the priority documents have been received in Application No. _____.

     3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

SAM RIMELL
PRIMARY EXAMINER

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37

CFR 1.17(e), was filed in this application after final rejection. Since this application is

eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR

1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn

pursuant to 37 CFR 1.114. Applicant's Request for Continued Examination (RCE)

submission filed on 17-May-2004 has been entered. In addition, the "Preliminary"

amendment filed on 17-May-2004 has been entered for the continued examination of this

application.

Remarks

2. In response to communications filed on 17-may-2004, claims 1 and 5 are amended per

applicant's request. Claims 1, 5 and 7 are presently pending in the application, of which,

claims 1 and 5 are in independent form.

Specification

3. The specification is objected to because the arrangement of the disclosed application does not

conform with 37 CFR 1.77(b).

Section heading appear **boldfaced** and/or <u>underlined</u> throughout the disclosed

specification. Section headings should not be **boldfaced** or <u>underlined</u>. Appropriate

corrections are required according to the guidelines provided below:

4. The following guidelines illustrate the preferred layout for the specification of a utility

application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include
the following sections in order. Each of the lettered items should appear in upper case, without
underlining or bold type, as a section heading. If no text follows the section heading, the phrase
"Not Applicable" should follow the section heading:

   (a) TITLE OF THE INVENTION.
   (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
   (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR
       DEVELOPMENT.
   (d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A
       COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program
       listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables
       having more than 50 pages of text are permitted to be submitted on compact
       discs.) or
       REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a).
       "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
   (e) BACKGROUND OF THE INVENTION.
       (1) Field of the Invention.
       (2) Description of Related Art including information disclosed under 37 CFR 1.97
       and 1.98.
   (f) BRIEF SUMMARY OF THE INVENTION.
   (g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
   (h) DETAILED DESCRIPTION OF THE INVENTION.
   (i) CLAIM OR CLAIMS (commencing on a separate sheet).
   (j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
   (k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence
       Listing" is required on paper if the application discloses a nucleotide or amino
       acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence
       Listing" is not submitted as an electronic document on compact disc).

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Amended claim 1 in recites "percolating values within the data structure from the root to any unused leaf while not percolating values within the data structure from the root to any unused leaf, the percolating values comprising one or more holes" which renders the claim vague. The limitations of the claim language are in contradiction with one another. It is not clear in the amended claim as to how "values are percolated" while "values are not percolated". Appropriate correction is required.

Claim Rejections - 35 USC § 101

7. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

8. Claims 1, 5 and 7 are rejected under 35 U.S.C. 101 because it includes non-statutory subject matter.

The amended claim 1 recites "a method to perform an add operation from a root to a leaf, comprising the steps, in a data structure comprising a heap, of........", which presents an "abstract idea" which does not necessarily require a technology. A claim must not be directed merely to an abstract idea, but must instead be tied to a technological art, environment, or machine, which would result in a practical application producing a concrete, useful and tangible result.

The amended claim 5 recites "a method for performing a remove operation in a data structure, comprising the steps of........", which presents an "abstract idea" which does not necessarily require a technology. A claim must not be directed merely to an abstract idea, but must instead be tied to a technological art, environment, or machine, which would result in a practical application producing a concrete, useful and tangible result.

Claim 7 is rejected under 35 U.S.C. 101 because it depends from the rejected independent claim 5.

9. Claim 1 is further rejected under 35 U.S.C. 101 because it renders the disclosed invention inoperative and therefore lacks utility. Claim 1 recites "percolating values within the data structure from the root to any unused leaf wile not percolating values within the data structure from the root to any unused leaf". It is not clear from claim 1 whether or not percolation of values from the root to any unused leaf is performed.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act

of 1999 (AIPA) do not apply to the examination of this application as the application

being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily

published under 35 U.S.C. 122(b). Therefore, this application is examined under 35

U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

11. Claims 1, 5, and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Rathbun (U.S.

Patent No. 6,138,123.)

As to claim 1, Rathbun teaches a method (see Abstract) to perform an add operation from

a root to a leaf (see figures 4-8, and see column 6, lines 49-63, where "add operation" is read

on "insert() function"), comprising the steps, in a data structure comprising a heap (see

column 8, lines 37-40, and see column 36, lines 18-22), of:

identifying a root in the data structure (see column 14, lines 4-11);

identifying any unused leaf in the data structure (see column 26, lines 54-65, where

"unused leaf" is read on "empty cell"); and

traversing from the root to the any unused leaf (see column 7, lines 4-22) in the data

structure, the traversing step comprising:

percolating values within the data structure from the root to any unused leaf while not

percolating values within the data structure from the root to any unused leaf, the

percolating values comprising one or more holes (see figures 52-53 and 55, see column

16, line 23 through column 19, line 42; see column 26, lines 54-65; and see column 27,

lines 40-59.)

As to claim 5, <u>Rathbun</u> teaches a method (see Abstract) for performing a remove

operation in a data structure (see figures 9-10 and 27, and see column 6, lines 49-63, where

"remove operation" is read on "remove() function"), comprising the steps of:

removing a value from a root that leaves a hole (see figures 52-53 and 55, and see

column 8, lines 1-10); and

percolating the hole to a leaf position (see column 8, lines 11-15, where "percolating the

hole to a leaf position" is read on "re-ordering data structure"), including percolating the hole

to any arbitrary leaf position in the data structure (see column 27, lines 52-56, where

"arbitrary leaf position" is read on "any nodes which have their ranges wholly or partially

dependent on G-node v.")

As to claim 7, <u>Rathbun</u> teaches wherein the data structure comprises a treelike structure

(see figures 1-2.)

Response to Arguments

12. Applicant's arguments filed on 17-May-2004 with respect to the rejected claims 1 and 5, as amended, have been fully considered but are not found persuasive:

In response to the applicant's arguments that "the Applicants have amended claim 1 to make the distinction between the claimed process and that disclosed in Rathbun", the arguments have been fully considered but are not deemed persuasive, because the limitations of the amended claims 1 and 5 are still met by Rathbun, as explained in paragraphs 10-11 of this Office Action.

At the end of the Remarks section of the Preliminary Amended filed on 17-May-2004, the applicant referrers to "claims 5 and 7 which depend from claim 1". It is noted that claim 7 depends from claim 5. However, claim 5 is written in independent form and has no indications of dependency to claim 1. Therefore, claims 1 and 5 are considered independent claims and claim 7 is dependent from claim 5.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of art with respect to inserting

and deleting nodes from binary trees in general:

Cormen, Thomas C.; Leiserson, Charles E.; Rivest, Ronald L,
INTRODUCTION TO ALGORITHMS, 24th Printing, 2000,
The Massachusetts Institute of Technology, ©1990, PP 379-419.

14. Any inquiries concerning this communication or earlier communications from the examiner

should be directed to Tony Mahmoudi whose telephone number is (571) 272-4078. The

examiner can normally be reached on Mondays-Fridays from 08:00 am to 04:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Dov Popovici, can be reached at (571) 272-4083.

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November 23, 2004

SAM RIMELL
PRIMARY EXAMINER